



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 1

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OFFICE OF THE  
REGIONAL ADMINISTRATOR

NEC Future  
Rebecca Reyes-Alicea  
U.S. DOT Federal Railroad Administration  
One Bowling Green, Suite 429  
New York, NY 10004

RE: NEC Future Tier 1 Draft Environmental Impact Statement, CEQ #20150312

Dear Ms. Reyes-Alicea:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act, we have reviewed the Tier 1 Draft Environmental Impact Statement (DEIS) for the Federal Railroad Administration's (FRA) NEC Future project in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia and Washington DC.

According to the DEIS, NEC Future "is a comprehensive planning effort to define, evaluate, and prioritize future investments in the Northeast Corridor (NEC) from Washington, D.C. to Boston, Massachusetts. The NEC is the rail transportation spine of the Northeast and a key component of the region's transportation system. The NEC supports the operation of eight Regional rail authorities and Amtrak - the Intercity rail service provider - as well as four freight railroads." The FRA's approach to analyzing the environmental consequences of the proposed planning effort under NEPA is pursuant to the NEPA regulations that encourage "tiering." Tiering anticipates coverage of general matters in broad EISs that can then be relied on in subsequent narrower EISs or Environmental Assessments (EAs) that evaluate more focused, regional or site-specific, projects or programs. Here, the Tier 1 analysis is a planning level analysis of the corridor. FRA intends the Tier 1 process to decide the fundamental path forward for the Northeast Corridor, based on environmental and other considerations. That decision can then be relied on when deciding future discrete projects that are components of the entire NEC Future effort based on the Tier 1 selection of a preferred alternative for the entire corridor. Actual projects to implement the selected vision for the corridor would be subject to subsequent study and review through the Tier 2 NEPA process. The complexity of the NEC Future project supports the FRA's decision to conduct a tiered analysis.

The DEIS provides a comprehensive explanation why the FRA decided to undertake the NEC Future analysis. The analysis documents that the 457-mile NEC is a critical piece of infrastructure that moves in excess of 750,000 passengers a day, while also supporting the annual movement of 350,000 train car loads of freight. The megaregion the NEC serves is of local,



regional and national economic importance since it is the source of one of every five dollars of the United States' gross domestic product. Despite its important role in the region and country, the NEC's age, design, poor maintenance, and limitations on resiliency and adaptation, are predicted to severely handicap the NEC's ability to meet future demand. The DEIS notes, "With its continued reliance on constrained and aging infrastructure, the No Action alternative means a declining role for rail in the Northeast transportation system. Moreover, with minimal new investment in capacity or reliability, the No Action alternative provides limited ability for the NEC to recover from major storms and other disruptive events, and hinders freight movement." The DEIS describes three Action Alternatives to better position the NEC for the future.

The three Action Alternatives developed by the FRA focus on maintaining, growing or transforming the NEC. The maintenance alternative (Alternative 1) provides for significant increases in rail service to meet needs of the region through 2040. The growth alternative (Alternative 2) grows rail to provide service levels exceeding the projected growth in population and employment, adds new service areas in New England and adds capacity to support growth beyond 2040. The transformational alternative (Alternative 3) adds a second spine from Washington, D.C., to Boston, provides for faster trips and adds new markets not currently served. Under the transformational approach, rail "becomes the dominant mode of travel in the Northeast, with the capacity to support the regional economy well into the future." The cost of implementing the alternatives ranges from 64 to 308 billion dollars with the project costs spread over many years. The scale of the project for the three Action Alternatives is massive; however, the EIS notes that the initial phase of the project, regardless of which alternative is ultimately selected, will be the same. This initial effort is referred to in the EIS as the "Universal First Phase." Common elements of this phase include maintaining and improving service on the NEC; repair, replacement and renewal of aging infrastructure; and addressing the most pressing chokepoints to increase capacity. The cost of the Universal First Phase is approximately thirty four billion dollars over a ten to fifteen year implementation period. The DEIS also notes that all alternatives will be designed to protect any potential freight access and expansion opportunities.

In addition to making the NEC a more dominant travel mode for the Northeast megaregion (and shifting riders away from highway and air travel) the NEC Future project is expected to reduce energy use and emissions. Net emissions of carbon dioxide (CO<sub>2</sub>) are expected to be reduced in each of the Action Alternatives. In addition to meaningful greenhouse gas reductions, the Action Alternatives can make the NEC corridor more resilient in the face of severe weather events and sea level rise. These noteworthy benefits are contrasted in the DEIS with substantial negative impacts to fresh and saltwater wetlands ranging from 540 to 1740 total acres and impacts to between 97 and 130 parklands, recreation areas, and wildlife/waterfowl refuges. The potential impacts are characterized in a very general fashion in the Tier 1 DEIS with the promise to analyze them further in the Tier 2 process once an alternative is selected and specific projects advanced.

Project success for this complex, long term project will require a firm commitment to avoid or reduce harmful environmental impacts and state whether all practicable means to avoid or minimize environmental harm from a selected alternative have been adopted, and, if not, why they were not. The Tier 1 DEIS does not contain sufficient detailed information for EPA to offer an opinion on either of these issues at this time. It is clear that construction and operation of any



of the Action Alternatives could result in different direct, indirect and cumulative impacts to resources that are within EPA's areas of jurisdiction and expertise. As such we offer our input to help the FRA select a vision for the NEC going forward. Based on our review of the Tier 1 analysis, we offer the following comments regarding the project and FRA's DEIS (with supporting information in the attachment to this letter):

- **The Tier 1 DEIS appropriately outlines a long-term strategy for rail infrastructure improvements in the megaregion.** The FRA analysis identifies a long list of deficiencies in the NEC that severely limits the ability of the corridor to serve the megaregion currently and into the future. The DEIS also makes a compelling case that ever-increasing congestion on roads, on the rails, and in the air requires attention now. We support the strong focus on resiliency, environmental sustainability, impact avoidance, and economic growth. Further, any long-term approach to improve the NEC for the future will require sustained ongoing coordination with affected communities and stakeholders.
- **Development of the Action Alternatives will trigger a wide range of significant impacts that will require permitting and appropriate mitigation.** In particular, all of the Action Alternatives have a great potential to impact wetlands, parklands, ecological functions and communities along the proposed work areas. It is also clear that solutions to these problems will cause other impacts and have costs. We encourage the FRA to avoid segmentation when considering future actions to assure there is a thorough analysis of all the impacts as connected actions. It will then be critical for the Tier 2 analyses to fully consider designs that avoid and minimize impacts, particularly when the proposed projects will intersect complex or high value resources (described in part in the attachment to this letter).
- **The positive greenhouse gas (GHG) implications and climate adaptation elements of the project are compelling and present an opportunity to make major strides in reducing the number of vehicles on the road.** The DEIS presents a summary of changes in carbon dioxide equivalent (CO<sub>2e</sub>) emissions for roadways, and diesel and electric trains. Based on that analysis, net total GHGs decrease due to a reduction in vehicle miles traveled, with Alternative 1 reducing 274,650 tons of CO<sub>2e</sub> emissions and one Alternative 3 configuration reducing up to 581,525 tons of CO<sub>2e</sub> emissions per year. It remains clear that, in addition to the net benefits demonstrated in the DEIS, the NEC Future Action Alternatives have the potential to remedy some of the current vulnerabilities to sea level rise, storm surge and severe weather events.
- **The FRA's proposed plan to issue the Final EIS (FEIS) and Record of Decision (ROD) at the same time may hinder public engagement critical to a successful project.** The DEIS notes that the FRA may conclude the Tier 1 process through the issuance of a joint Tier 1 FEIS and ROD. In this instance, we do not think that the use of a combined FEIS/ROD is appropriate. As all of the Action Alternatives have the potential to affect a wide variety of resources including wetlands, parks, and environmental justice communities, EPA recommends that the FRA stagger issuance of the FEIS and ROD documents to allow the public and other stakeholders an opportunity to review and comment on the preferred alternative and any new information/analysis contained in the FEIS. The need for an



opportunity to comment on the FEIS is particularly acute for a Tier 1 EIS where a ROD may finalize a decision that reaches far into the future and that will influence selection of Tier 2 projects. These projects will have pronounced direct and indirect impacts as well as short--and long--term impacts. Public and agency comment on the FEIS will help the FRA produce a more fully informed ROD and a better decision. We request the opportunity for additional agency coordination prior to the issuance of the ROD.

- **The NEC Future process requires continued attention to freight rail issues as the project advances through the balance of Tier 1 and into the Tier 2 process.** In particular we suggest that the FRA expand the discussion of infrastructure and operational planning, and the emissions and noise calculations that derive from them, for whichever NEC Alternative is selected as the preferred alternative. Specifically, we encourage an expanded discussion on the practice of letting freight locomotive engines run while trains sit idle on tracks (idling) yielding priority to passenger trains on the NEC. Suggestions of how the project can be designed to minimize impacts from idling is provided in the attachment to this letter, including a suggestion that the NEC Commission execute binding agreements with railroads and system operators to reduce idling, establish engine shutdown policies, and designate waiting locations for idling trains. Any successful NEC Future vision will require close ongoing coordination with passenger and freight rail interests. We recommend that the analysis fully encompass the impacts of the operational practices of each to both human health and the environment.
- **We recommend that the FEIS contain a specific summary/breakdown of the impacts and schedule associated with the implementation of the Universal First Phase.** The addition of this specific discussion would add clarity and would take advantage of the Tier 1 process to advance the environmental impacts dialogue on anticipated first elements of the NEC Future project.
- **Need for summary of benefits and detriments.** The DEIS highlights the tradeoffs between improving the transportation system and causing environmental harm. The addition of a chart that qualitatively summarizes the environmental benefits and detriments would provide the reader and decision-maker with a single, big picture accounting that would help in understanding tradeoffs. For purposes of measuring these impacts, it would be useful to provide metrics that are easily understood. For example, the reduction in GHGs presented as a reduction in tons of CO<sub>2</sub> emitted on a project basis, might be expressed as its equivalent in the number of vehicles eliminated from roadways.
- **The FEIS would benefit from an expansion of the discussion of types of project impacts (for all Action Alternatives).** For example, the DEIS provides no discussion of potential impacts to drinking water resources (with the exception of Sole Source Aquifers) or mitigation measures that will be taken to address possible impacts. EPA is concerned with impacts to drinking water where the NEC Action Alternatives may cross through and potentially degrade surface and groundwater sources of drinking water. Specific suggestions as to how this issue and other potentially detrimental effects could be addressed in the balance of the Tier 1 process and in Tier 2 are included in the attachment to this letter. In addition, while the DEIS presents a broad look at the environmental impacts of various



alternatives, the description of environmental consequences is often general, and expressed as acres of areas of environmental sensitivity. While this level of detail is useful for broad planning purposes, where permitting or other foreseeable hurdles will prohibit or delay construction of the project, they should be reflected in the Tier 1 FEIS.

- **The FEIS, and ultimately the Tier 2 analyses would benefit from a more complete evaluation of environmental justice issues.** The Tier 1 DEIS, by its general focus, limits insight into disproportionate impacts of the Action Alternatives on minority and low-income populations. This is understandable given the tiered nature of the environmental analysis and the lack of a preferred alternative at this early phase in the NEPA/planning process. The public may not be able to identify potential local impacts to their communities where alternatives are presented at a general level. We encourage the FRA to make best efforts to explain the potential impacts and mitigation being considered based on the general information at hand to the environmental justice communities at public hearings, in written documents, and in the Final EIS. We recommend the FRA include in the Final EIS how to include the environmental justice communities in mitigation measure discussions during the Tier 2 level NEPA reviews and analyses. Increasing levels of community coordination will be critical as project elements become more distinct during the Tier 2 analyses. EPA recommends that the FEIS more precisely identify minority and low income populations, expand its EJ outreach, provide a more complete discussion of the intra-city transit impacts of all facilities associated with the Action Alternatives, and begin a discussion of mitigation opportunities with affected environmental justice populations.
- **The complexity of the NEC Future project calls for enhanced agency coordination.** EPA intends to remain actively engaged in the planning and NEPA phases of project development and encourages the FRA to continue close coordination with federal, state and local level interests to help define project goals and outcomes and avoid unnecessary project delays. EPA recommends the early establishment of interagency working groups to help focus these enhanced coordination efforts, which will be critical to address challenges surrounding high value or complex resources, such as the John Heinz National Wildlife Refuge.

The DEIS sets out a substantial amount of information indicating that “demand will exceed capacity by over 6,000 passengers per hour in 2040” at the Hudson River, which is the most constrained part of the corridor. The FRA further demonstrates in the Tier 1 DEIS the importance of the corridor to the megaregion and the national economy, while emphasizing the meaningful transportation and environmental benefits from the selection of various Action Alternatives. As made clear, the more forceful the action alternative, the greater the transportation services and environmental benefits.

The enclosure to this letter expands on the issues and questions raised above regarding project impacts and deficiencies in the environmental analysis that need to be addressed in the Tier 1 FEIS and beyond. We have rated the DEIS “EC-2” (Environmental Concerns-Insufficient Information) in accordance with EPA’s national rating system, a description of which is



enclosed. EPA is ready to continue to participate on the interagency agency team to provide additional input, as necessary, to help FRA develop the Tier 1 FEIS. We encourage the FRA to continue with the tiered process with increased interagency involvement as specific and detailed project impacts come into focus. For our part, we will continue to seek out opportunities to coordinate closely with the FRA as the tiered process evolves. To date EPA has been represented throughout the FRA process by staff from three regional offices and headquarters. This comment letter reflects the consolidated review of our agency.

I want to acknowledge the the FRA's cooperation in the work leading up to the publication of the Tier 1 DEIS. Through recognition of the large geographic area and linear nature of the project and the potentially wide range of significant direct, indirect and cumulative impacts it may cause, the FRA and its consultants have promoted a productive dialogue with the EPA and other state and federal agencies. Those efforts are appreciated. Our comments are offered in the spirit of advancing a more informed discussion of the project's environmental impacts. We look forward to continuing to work with the FRA as the Tier 1 FEIS is developed.

Please feel free to contact Timothy Timmermann of the Office of Environmental Review at 617/918-1025 if you wish to discuss these comments further.

Sincerely,

A handwritten signature in black ink, appearing to read 'H. Curtis Spalding', written in a cursive style.

H. Curtis Spalding  
Regional Administrator

enclosure



## **Summary of Rating Definitions and Follow-up Action**

### Environmental Impact of the Action

#### **LO--Lack of Objections**

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

#### **EC--Environmental Concerns**

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

#### **EO--Environmental Objections**

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

#### **EU--Environmentally Unsatisfactory**

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

### Adequacy of the Impact Statement

#### **Category 1--Adequate**

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

#### **Category 2--Insufficient Information**

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

#### **Category 3--Inadequate**

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.



## **Additional Detailed Comments on NEC Future Tier 1 DEIS**

### **Wetland Impacts**

Development of the action alternatives will result in a wide range of direct, indirect and cumulative impacts to wetlands and other water resources within the project area. According to the Tier 1 DEIS, the estimated direct wetland impacts (combined fresh and saltwater impacts) will total approximately 540 acres for Alternative 1, 745 acres for Alternative 2 and from 1265 to 1740 acres for Alternative 3. Alternatives 1 and 2 consist of improvements to the Existing NEC, while Alternative 3 would result in greater impacts due to the addition of a second transportation spine along the NEC. All Action Alternatives will result in substantial and extensive indirect and cumulative impacts.

A permit under Section (§) 404 of the Clean Water Act will be necessary if projects are ultimately selected and advanced for construction following Tier 2 NEPA process. EPA's § 404(b)(1) guidelines (40 CFR Part 230) set forth the environmental standards that must be satisfied in order for a § 404 permit to issue. Four of the key guidelines' provisions are as follows:

Section 230.10(a) prohibits the discharge of dredged or fill material if there exists a practicable alternative which causes less harm to the aquatic ecosystem. A discharge of dredged or fill material is prohibited if there "is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem so long as the alternative does not have other significant adverse environmental consequences." This fundamental requirement of the Section 404 program is often expressed as the regulatory standard that a permit may only be issued for the "least environmentally damaging practicable alternative" or LEDPA. Furthermore, where (as here) the project is not water dependent and involves fill in wetlands and other special aquatic sites, practicable and less environmentally damaging alternatives are presumed to exist unless clearly demonstrated otherwise by the applicant.

Section 230.10(b) prohibits discharges which would cause or contribute to violations of state water quality standards; violate toxic effluent standards under § 307 of the Clean Water Act; jeopardize the continued existence of an endangered or threatened species, or result in the likelihood of the destruction or adverse modification of such species' critical habitat; or violate requirements of marine sanctuary designations.

Section 230.10(c) prohibits discharges which would cause or contribute to significant degradation of waters of the U.S. Significant degradation may include individual or cumulative impacts to human health and welfare; fish and wildlife; ecosystem diversity, productivity and stability; and recreational, aesthetic or economic values.

Section 230.10(d) prohibits discharges unless all appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem. Compensatory mitigation for unavoidable impacts to the aquatic ecosystem must satisfy the requirements of 40 CFR §§ 230.91-230.98.



We recommend that the Tier 1 FEIS better characterize the nature and extent of all direct, indirect and cumulative impacts for all alternatives. The assessment of indirect impacts should include full consideration of the secondary effects of project alternatives on the aquatic ecosystem, as required under 40 CFR Part 230. We additionally recommend that the FEIS also consider direct, indirect and cumulative impacts associated with new development spawned by the various Action Alternatives. Ultimately, all direct, indirect and cumulative impacts on the aquatic ecosystem associated with the NEC project must be avoided, or, where unavoidable, minimized per the Clean Water Act § 404(b)(1) guidelines. All unavoidable direct, indirect and cumulative impacts must be mitigated per the 2008 federal aquatic resource compensatory mitigation regulations at 40 CFR Part 230.

The DEIS' assessment of "environmental consequences" does not adequately describe the extent and range of indirect impacts. Environmental consequences, under both the wetlands impact analysis and the ecological resources impact analysis, are estimated by tallying the acreage of wetlands or environmental resources present within the footprint of the representative route. This represents a distance of only a few hundred feet at most from the route centerline. This distance is not adequate to capture the range and extent of indirect impacts. Instead, we suggest a distance closer to the Ecological Resource Affected Environment boundary. A swath of fifteen hundred feet from the route centerline would better capture potential indirect impacts for a Tier 1 screening level analysis.

In some cases, the Affected Environment described in the DEIS may not be adequate to assess certain types of indirect impacts. For example, if a water crossing were to block migratory fish passage, then the entire upstream habitat would be cut off, which could adversely affect miles of fish habitat. Similarly, a rail crossing that impedes tidal flow could result in the destruction or conversion of salt marsh inland of the crossing location at distances greater than fifteen hundred feet from the representative route centerline, and could also encourage the growth of invasive species (e.g. *Phragmites australis*). As another example, it is possible that adverse water quality impacts associated with the construction or operation of the project could also extend far beyond 1500' from the centerline of the representative route.

For purposes of a Tier 1 assessment, we recommend that the FEIS provide a qualitative description of indirect impacts at the scale described above to capture the full extent of these impacts. More detailed, site- and species-specific quantitative analyses of indirect impacts will need to be conducted for Tier 2 analyses.

Freshwater and saltwater resources will be affected by the construction of "at grade" rail facilities and crossings, as well as tunnels and aerial structures, requiring permanent fill in wetlands and waterways. We recommend clarifying whether all of the impacts considered (for example in Appendix E.05 and Appendix A.1) are permanent fills regulated by the Clean Water Act. It may be useful to clarify the nature of the aquatic impacts and categorize them as acres of wetland/water crossed by tunnel, aerial structure and "at grade", as each of these have different impacts on aquatic resources.

The basis for the thresholds for inclusion of resources mentioned in sections 7.5.3 and section 7.5.5 should be explained. For example, the rationale for specifying freshwater wetland impacts



of 250 acres or greater, or saltwater wetland impacts of 200 acres or greater, is unclear. Also, the area (acreage) of wetlands impacted does not directly correlate to the total impact of a fill due to differences in the specific characteristics of each wetland impacted by the project. Qualitative information identifying wetlands of high value would enhance the analysis of wetland impacts. We also recommend that the FRA actively coordinate with state and federal resource agencies during the Tier Two process to identify high quality, high value streams and wetlands and to gain input on how to avoid and minimize impacts to these resources.

The DEIS uses the National Wetland Inventory (NWI) to identify wetlands in each corridor. While NWI can be used to approximate the areal extent of wetland, it does not replace the need for detailed site investigations and for the in-field delineation of "waters of the U.S.," as defined by the Clean Water Act as the project moves beyond the Tier 1 planning level.

### **Ecological Resources**

In some instances defining the Affected Environment by a 3000 foot boundary (i.e., 1500 feet in either direction from the centerline of the Representative Route) may not adequately capture the full extent and range of all indirect impacts on ecological resources. The examples we provided in our discussion of wetland impacts (above) are also indicative of some of the types of far-ranging indirect impacts on other ecological resources (in addition to aquatic resources) that may result from the construction and operation of the various alternatives under consideration. These kinds of indirect impacts include, but are not limited to: the blockage or restriction of fish or other wildlife passage; the restriction of tidal or freshwater flow; water quality degradation; and, fragmentation of wildlife habitat. The DEIS assesses the environmental consequences of the proposed project on ecological resources in much the same way as it assesses direct wetland impacts by summing the acreage of the affected resource that lies within the Representative Route corridor. The extent of potential indirect impacts is likely to approach the 3000-foot Affected Environment boundary (and possibly extend beyond), as noted above, rather than be limited to the footprint of the Representative Route.

Moreover, the DEIS assessment includes identification and discussion of impacts (including habitat fragmentation impacts) on those ecologically sensitive habitat (ESH) areas where ten percent or greater of the total area of ESH is potentially impacted. The reasoning behind the focus on ESH areas where ten percent or greater of the total area of ESH is potentially impacted should be re-examined. If, for example, the proposed route bisects a very large area of unfragmented habitat, then the area within the representative route will necessarily be small in relation to the large unfragmented habitat and may well be less than ten percent of the total area. Yet this situation could still describe an impact of great importance, if, for example, there are resident or migratory species requiring large uninterrupted habitat blocks that are fragmented by the project. It is likely that a route that bisects a large habitat block, and represents less than ten percent of the total area, would have a much more severe adverse effect than a route that traverses the edge of a small habitat block, but which is greater than ten percent of the total resource area. The Tier 1 FEIS analysis, and the eventual Tier 2 detailed, quantitative analyses, should account for this possibility and focus on site- and species-specific ecological effects based on ecologically relevant numerical metrics.



For the Tier 1 FEIS, it is appropriate to describe indirect impacts qualitatively, with a more detailed quantitative analysis to be presented in Tier 2. However, we recommend that the Tier 1 assessment consider the full range and extent of indirect effects, and not be limited to the boundary of the Representative Route. Furthermore, we suggest that the FRA refocus the Tier 1 assessment of indirect effects where ecological conditions warrant extension of the boundary of the Affected Environment. Similarly, we suggest that the cumulative effects of the various alternatives on ecological resources be more thoroughly described qualitatively, and supplemented with more rigorous quantitative analysis under Tier 2.

Lastly, Section 7.6 defines ecological resources as terrestrial and aquatic environments that are fundamental for maintaining balanced earth processes. The DEIS includes ecologically sensitive habitats, federally listed threatened and endangered species, essential fish habitat, and federally managed fish species as ecological resources. The section does not mention the Marine Mammal Protection Act (MMPA). Though the need for consultation under the MMPA is uncertain, the return of resident seal populations in coastal areas of Long Island Sound speaks to the likelihood of needing increased coordination as the project advances. We suggest that the Tier 1 ROD include commitments regarding ecological resources be developed for Tier 2 including coordination with federal and state agencies and additional studies or surveys where appropriate.

### **Impacts to Parkland, Refuges and other Open Space**

All of the Action Alternatives have the potential to impact important federal, state and local parkland, refuges, aquatic habitat and open space. Likely impacts include forest fragmentation, and loss of habitat, among others. All of these impacts represent meaningful challenges to the project that need to be fully considered during the Tier 2 analysis. The DEIS discussion of impacts to parklands, recreational areas, and wildlife/waterfowl refuges (summarized on table 7.16-4) notes that ninety five areas in this category are affected by the existing NEC and that between ninety-seven and 130 are affected by the Action Alternatives. Given the similarity of the numbers on the lower end of the range, the presentation of impacts should indicate whether the impacts listed for the Action Alternatives are inclusive of those impacts listed for the existing NEC, or include new areas or both.

We offer the following general observations (by way of illustration) about several areas in the Mid-Atlantic portion of the project area that may be affected by the Action Alternatives:

#### **Patuxent Research Refuge**

EPA is concerned about proposed impacts to the Patuxent Research Refuge associated with Alternative 3. The Refuge is an area of high habitat diversity and contains headwater stream systems that drain to the Little Patuxent River. Alternative 3 would bisect the Refuge property, directly impacting sixty acres. Indirect effects would also occur as contiguous blocks of forest habitat would be disturbed, affecting important interior habitat. This impact could trigger Endangered Species Act requirements as the Northern Long Eared Bat, a threatened species under the Endangered Species Act, is present on Refuge property.



### John Heinz National Wildlife Refuge at Tinicum

The John Heinz National Wildlife Refuge at Tinicum (Tinicum) is an important ecological resource in the Philadelphia area. Approximately sixteen acres of Tinicum would be directly impacted by Alternative 2. Bisecting Tinicum would result in additional impacts beyond the direct fill and footprint of the railway, including habitat fragmentation, impacts to water quality and a likely loss of recreational and educational value. A thorough cumulative effects analysis on parkland, recreational areas and refuges is encouraged and will be critical in the Tier 2 process, particularly for Tinicum which faces impact from several major known projects.

### Chesapeake Bay

The Chesapeake Bay is the largest estuary in the United States and the third largest estuary in the world. Its watershed is home to approximately 17 million people and contributes significantly to the surrounding local and state economies. There are many stakeholder groups, agencies, and partners focused on the restoration, conservation and protection of the Bay, its tributaries and the lands that surround them. The Chesapeake Bay was recognized as a national treasure in Executive Order (EO) 13508. The EO presents multiple water quality, habitat restoration, and fish and wildlife sustainability goals. The US Army Corps of Engineers and EPA recognize the Chesapeake Bay as an aquatic resource of national importance. The Chesapeake Bay also has an established a landmark pollution “diet,” formally known as a total maximum daily load (TMDL) for nitrogen, phosphorus, and sediment.

Each of the Action Alternatives crosses the Chesapeake Bay and could damage Bay resources. With each of the alternatives potentially causing adverse impacts to wetlands, streams and forest areas within and abutting the Bay, EPA suggests that the Tier 1 document address the loss of or damage to these resources from construction-related impacts, including sediment discharges and erosion within the broader context of the Bay ecology as a whole. Evaluating potential impacts to the Bay would add a higher level discussion about natural resources and allow the FRA to make a more informed decision when selecting a preferred alternative in Tier 1. At a minimum, Tier 2 analyses should examine how adverse impacts to individual resources will affect the ecology of the Bay.

The development of appropriate compensatory mitigation at Tinicum and other special areas affected by the Action Alternatives along the entire project corridor will be difficult due to their uniqueness. We recommend that the FRA coordinate with the stewards of each refuge in advance of releasing the FEIS and include commitments in the FEIS and ROD to ensure that adverse impacts are addressed.

## **GHG emissions and Climate Change Adaptation**

### GHG Emissions

We found the discussion of GHG emissions effective and the scale of discussion appropriate for a Tier 1 DEIS. Given emerging policymaking in this area, we recommend that the discussion and broad listing of relevant federal authorities and State laws addressing climate change be updated in the FEIS to reflect relevant EPA regulations, 2015 Executive Orders on flood risk and federal sustainability, and any recent revisions to State adaptation plans. Last, the discussion would benefit from two changes: first, focusing only on anthropogenic GHGs without discussing



water vapor; and, second, consistently directing the measurement of GHG emissions in tons of CO<sub>2e</sub> per year without consideration of “ambient” GHG.

#### Climate Change Adaptation

The analysis considers both near term and long term sea level rise scenarios to project a range of potential climate change impacts on rail infrastructure in the NEC. The analysis also evaluates the overall current and future vulnerability of each alternative to sea level rise and riverine flooding, coastal storm surge, and extreme heat and cold events. The analysis concludes that over time the geographic extent of high flood risks are likely to increase significantly. Although the risk varies among alternatives, the anticipated vulnerability represents a considerable challenge to the resiliency of the NEC, regardless of the alternative selected.

The list of options for addressing identified vulnerabilities provided in Table 7.15-5 provides a useful start for more detailed consideration of climate resilient design options during the Tier 2 analysis. EPA recommends that the FRA explicitly include track elevation strategies in the FEIS as another way to reduce flooding risk. Also, in terms of available resources to guide more detailed Tier 2 risk analysis, we recommend the FEIS reference chapter 26 of the National Climate Assessment, “Decision Support.” Among other things, the chapter offers suggestions for addressing uncertainty issues.

#### Reduction in Flood Risk

Substantial reduction in flood risk is achieved by new inland routes (featured in Alternative 3) that also offer redundancy to the NEC at points north of New York City. We recommend that the FEIS also discuss at least briefly alternatives to reduce flood risks to the southern half of the NEC, including the potential for inland routes that may be feasible. We note, in particular, that Hudson County, NJ, the southern gateway to New York Penn Station, is rated with high flood risk in each alternative analyzed. We recognize that while inland routes may reduce flood risk, they may also have the potential for adverse impacts to other resources of concern.

We also recommend that the sources of comparative flood risk reduction among the alternatives be clarified. We recommend that the characterization of flood risks south of New York City, for example, be presented in the same fashion as for northern route options.

We also recommend that the FEIS display flood risks with increased granularity along the rail corridor to illustrate inundation risks in a given location. This distinction would allow for clearer and more nuanced comparisons between the alternatives, since in the New England section inland routes are the dominant source of reduced risk, whereas in the mid-Atlantic the route location is unchanged. This would also help readers and decision-makers discern greater impacts in one state than another within a single alternative.

#### **Drinking Water**

The DEIS provides no discussion of potential impacts to drinking water resources (with the exception of Sole Source Aquifers) or mitigation measures that will be taken to address possible impacts. EPA is concerned with impacts to drinking water where the NEC action alternatives may cross over and degrade surface water and groundwater sources of drinking water.



Preventing negative impacts to drinking water resources during project construction and operation should be a high priority of the project. In general we recommend that Chapter 7 include a discussion of the possible effects of the construction and operation of each alternative on public and private drinking water supplies. It should also indicate the number and location of surface and aquifer drinking water supply sources, and identify relevant local, state and federal protection zones and land use limitations.

Specific comments regarding the consideration of drinking water issues in future analysis are provided below:

#### Sole Source Aquifers

The DEIS (Chapter 7.7 geologic formations) lists only sole source aquifers as significant aquifers. Sole source aquifers are of special significance, but all aquifers currently or potentially used for drinking water are of high value. We recommend that where the document identifies sole source aquifers, it explain its legal impact on alternatives. Specifically, upon EPA designation of a sole source aquifer, “no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.”

- Note also that “sole source aquifer” is a regulatory definition of an aquifer that has been formally designated as such by EPA. The regulatory definition does not capture all aquifers that are in fact the sole source of drinking water for a significant number of people. Such aquifers are, as a practical matter, often as environmentally important as those that have been formally designated.
- Section 7.7.3 states:” Notable resources within the Affected Environment include sole source aquifers, naturally occurring asbestos, karst terrain, and soils associated with moderate or high landslide susceptibility. The former two resources are notable to highlight within the Affected Environment because they may represent significant regulatory challenges.” The environmental consequences of crossing a sole source aquifer are much more significant than the regulatory challenges that action would entail.

#### Identify Areas where the proposed project may impact Public/Private Drinking Water Supplies and Identify State Drinking Water Protection Requirements

Both surface water and groundwater resources are likely to be impacted by the NEC Future project, especially in areas with new alignments; however, drinking water impacts are not mentioned in the Tier 1 DEIS. We recommend that the FEIS identify where the project will cross state-defined Source Water Protection Areas (for both surface water and groundwater). This includes all surface and ground water supplies used for public drinking water supplies within the existing NEC corridor and NEC alternatives being considered.

To prevent impacts on public water supplies that utilize groundwater, the NEC alternatives must not pass through the state defined Sanitary Protective Areas for any public water supply in the



project corridor. The EIS should also identify where the project will cross aquifers used for private drinking water supply. The FEIS should include an evaluation of potential impacts to all public drinking water supply protection areas or ground water protection areas (wellhead protection areas) particularly along the new segments which are being considered for Alternatives 2 and 3 within the Affected Environment.

To identify these public drinking water source protection areas, we recommend that the FRA contact all state agencies responsible for drinking water supply protection to include an evaluation of impacts to hydrologic/water resources. EPA, by separate cover, has forwarded a list of the state programs responsible for protecting public drinking water supplies which should be contacted.

#### Mitigation Techniques for Minimizing Impacts to Surface water or Groundwater Supplies and Sole Source Aquifers

The Tier 1 DEIS (Table 7.5-9) identifies Environmental Consequences to Water Resources for the Action Alternatives. It also identifies a new station is to be constructed in Westerly, RI close to the Pawcatuck River. The Pawcatuck Basin Aquifer System is a 295-square mile watershed located primarily in southwestern Rhode Island and partially in southeastern Connecticut. The Pawcatuck Basin Aquifer was officially classified as a Sole Source Aquifer under the Safe Drinking Water Act on May 13, 1988. The FEIS should identify all potential construction impacts and the mitigation techniques used to reduce impacts to the Pawcatuck Basin Sole Source Aquifer (and other aquifers that may be impacted in the corridor), especially where construction is planned, on any state cleanup sites, Superfund sites or leaking underground storage tank sites within the Affected Environment (a 2,000 foot buffer along the rail corridor).

#### Hazardous Cargo and Spill Control Countermeasures

We recommend that the FEIS identify all appropriate mitigation techniques proposed for freight transportation of hazardous materials along the NEC Futures corridor in the vicinity of Source Water Protection Areas and other watersheds contributing to drinking water supplies. The discussion should include planned mitigation techniques and spill control countermeasure plans for potential spills of diesel fuel and hazardous materials planned for transport on the rail system.

#### Potential Blasting Activity and Mitigation Techniques Near Groundwater Resources

Construction activities such as blasting may pose significant hazards to groundwater resources. Blasting near bedrock wells poses a significant risk to the well water quality and quantity. EPA recommends that alternatives to blasting be fully explored, and that blasting within close proximity to bedrock wells be avoided.

The FEIS (and the Tier 2 process to follow) should identify specific areas where blasting may occur in association with project construction. In those areas, specific steps should be outlined for contacting well owners (both private and public) in proximity to the construction areas in advance of blasting. Public and private wells near blasting and associated construction activities should be monitored for adverse impacts, including reductions in well water quality or quantity. In the event that construction impacts well yield or water quality, the applicant shall be responsible for corrective actions, which should be specified.

## Consideration of Freight Rail Issues

Understandably, the Tier 1 DEIS takes the perspective of accommodating freight movement into a corridor redesigned for improved passenger movement. It acknowledges DOT's forecast that freight rail traffic on the NEC will increase by about twenty-six percent (over 2010 volumes) by 2040. Yet, information about the freight railroads' markets, cargo, origins/destinations, equipment, and other detail is lacking. As a result, it is hard to judge the extent to which the needs of goods movement is addressed in the DEIS. While the DEIS assumes that the selected alternative will "not preclude" freight rail expansion, we recommend that the Tier 1 FEIS explain how and where NEC improvements will change the quantity or nature of goods movement; possible consequences for air quality, GHG emissions, noise, and safety; and how those impacts can be mitigated by infrastructure, equipment, and operational elements.

In terms of goods movement via freight rail over the NEC, all Action Alternatives present the potential for:

- Freight mode shift from truck to rail, resulting in some degree of positive GHG impact, because rail is a more fuel-efficient mode overall.
- Track, signal and other infrastructure upgrades, allowing faster freight rail travel, and, therefore, the potential to complete trips in fewer segments (if operators can manage windows/slots efficiently). Fewer segments means less engine-on waiting between segments, and thus some degree of positive GHG impact.
- Greater capacity for freight traffic and continued potential for freight/passenger rail access and travel conflict. This would have negative GHG impact due to delays (dwell) and idling.

EPA has accumulated experience with impacts of freight and passenger rail emissions and noise, which inform our reading of the DEIS:

- The broad NEC rail network is very complex, fragmented (in terms of ownership, and track segments), and congested. Delays at switches and waiting for access to shared track often have extensive ripple effects. Because yards are small, waiting often happens on sidings and private through-track, much of which is located very near homes and other non-industrial areas. Freight dwells due to trip interruption can balloon to many hours or even days at a time if they occur near the end of a crew shift, in a zone lacking adequate back-up crew, or en route to a customer who cannot take delivery at the adjusted arrival time. While the NEC Future plans envision upgraded interchanges, new switches, bigger yards and more coordinated operational control, the potential for delays to ripple throughout the rail connected network—not just on the NEC—should be taken into account in calculating impacts realistically and planning to minimize them.
- Regional and shortline railroads (RRs) move a lot of rail freight in the corridor. These RRs tend to have older locomotives & equipment than do Class I RRs, and thus they have dirtier exhaust and burn more fuel. Locomotives owned by smaller RRs are also less



likely to be equipped with auto engine start-stop (AESS) devices, which can shut down and restart locomotives to meet parameters (battery charge level, brake air compressor pressure, coolant temperature, cabin and control cabinet climate control), and provide brake air pressure anywhere a train waits, in any season. Further, many owners of older locomotives are reluctant to turn off their engines for fear of malfunction. Thus waiting generally means idling and resulting pollution. Prevalence of AESS in Class I locomotives should be high by analysis year 2040, due to EPA requirements, but these do not apply to shortline RRs or to older locomotives that have not been rebuilt (which make up much of some regional RRs' fleets).

- Freight railroads are currently running more very long (unit) trains and more double-stack cars. These longer, heavier, and slower trains need longer windows on shared track, which will require careful, realistic planning and operations projections in future FRA analysis. Some longer trains do not "fit" in existing yards & sidings, so tend to do more waiting (and multi-locomotive idling) in less favorable locations.
- The DEIS acknowledges that managing slowdowns and outages during the construction process will be extremely challenging. In estimating emissions and noise impacts, the FRA should take into account the idling of freight and passenger trains while they dwell in temporary locations both in the FEIS and future analyses; further, the FRA should carefully examine the impacts of selecting, equipping and managing those locations. The FRA should factor into the overall air quality costs/benefits emissions from idling locomotives.

For the Tier 1 FEIS and looking forward to Tier 2, EPA recommends that the FRA consider the following during infrastructure and operational planning, and the emissions and noise calculations that derive from them, for whichever NEC Alternative is selected:

- Freight trains yielding priority to passenger trains on the NEC will idle. FRA should ask the freight railroads where, and for how long, they will idle, under all scenarios that can be envisioned (e.g., season, time of day, equipment, shift). Refined corridor scheduling and management can minimize dwell, but context-sensitive planning requires that layover areas are sited, sized, operated and equipped appropriately with anti-idling infrastructure (e.g., shore power & yard air) where feasible to help further minimize idling. Because missed windows and other service anomalies may entail operational adjustments like trip segmentation and crew changes, the potential duration of secondary idling should not be underestimated.
- To minimize excess idling by both freight and passenger locomotives when not in transit, facilities for storage, maintenance and layovers should be equipped with shore power and ground air. Indoor storage is best for idling and noise reduction, equipment protection, and worker comfort. Extreme heat and cold conditions (expected to become more frequent as the climate changes) weigh in favor of providing shore power or indoor storage for mechanical reasons.

- Provisions for construction should include designating acceptable waiting locations, away from homes, schools, heavily-used parks, and waterways. If locomotives could be laying over in these locations for extended periods, FRA should consider requiring “portable air” and generators to supply electric power to enable locomotives to shut down safely.
- Because infrastructure and equipment is always subject to disuse and misuse, and operations can achieve or undermine efficiency, the NEC Commission should execute binding agreements with the railroads and system operators that:
  - Require use of idle reduction infrastructure where provided.
  - Establish engine shutdown policy/protocol (based on factors such as duration of wait, season, and onboard and trackside equipment).
  - Designate waiting locations.

## **Alternatives**

We note that significant action can be taken to minimize the environmental impacts of the construction and operation of the Action Alternatives, once details such as railway location and design, construction methods, and sediment control are defined in the Tier 2 process. It is imperative that actions to minimize or fully avoid environmental impacts, particularly to aquatic resources, be investigated and implemented using best available practices, such as longer bridges, advanced stormwater management methods, and reduced corridor widths in sensitive areas. Extra precautions to minimize or avoid impacts should be taken during construction in environmentally sensitive areas. EPA recommends that FRA commit in the Tier 1 FEIS to study alignment alternatives in the future that avoid valuable resources, incorporate best technologies for natural resource impact avoidance and minimization, and enhance overall resiliency of the NEC.

### Phasing and Combining Alternatives

The DEIS explains that the corridor-wide vision that will define the Preferred Alternative may include some elements of each of the Action Alternatives (to form a hybrid alternative) to best meet the service needs of specific markets. If the preferred alternative is a hybrid, or includes previously unidentified elements that have not evaluated in the past, the FRA should consider additional opportunity for public comment.

### Alternative Scope

The FRA should clarify how logical termini, break out projects, or scope for the implementation of the Action Alternatives, particularly for a hybrid alternative, will be determined. This information is important to help ensure impacts from project alternatives are appropriately analyzed.

### Alternative Rail Technology

We encourage the FRA to evaluate whether emerging rail technologies hold promise, particularly those with positive environmental impacts. Given the advances being made in rail transportation technology throughout the world, limiting the technology discussion to this single option narrows the range of reasonable alternatives considered. A broader look at other



technologies, particular in light of the fact that the DEIS is based on a horizon year of 2040, would be appropriate. While this document provides a high level view of options, it would be improved by considering promising new technologies that are likely to become available within a reasonable timeframe. Consideration of this factor is essential in the early planning phases, as the technology chosen for the universal first phase should not preclude use of advanced rail technologies in following segments.

### Sustainable Design

All three of the alternatives presented in the DEIS include the creation of new stations. While the specifications of station design and construction will be detailed in Tier 2 documents, the integration of sustainable design should be discussed in the Tier 1 FEIS. Discussion of key sustainability principles within the Tier 1 document will help communicate the importance of sustainable design and will also lay the foundation for future Tier 2 commitments to sustainably designed projects. We suggest that the FEIS present concepts of sustainable design for proposed stations including design, construction, operation, maintenance, energy efficiency, water efficiency, waste reduction and management, and stormwater runoff. We also recommend that stations be designed to be eligible for LEED certification and explain how projects will be consistent with the March 2015 Executive Order entitled “Planning for Federal Sustainability in the next Decade,” which states that federal agencies shall increase efficiency and improve environmental performance. Sustainability is a priority area for EPA and we have developed a number of tools, guidance documents and programs to support the application of sustainability.

The DEIS states that all Action Alternatives assume the use of high-performance trainsets; however, in keeping with the tiered approach, Tier 1 is not prescriptive with respect to the use of particular equipment types. The document states that the Action Alternatives are flexible in regard to the mix of equipment that could be operated. While the specific equipment need not be identified at this point in the review process, the environmental impacts of the different options should be discussed in the Tier 1 FEIS. This should include a discussion of the possibility of retrofitting the existing rolling stock, reuse/recycling options for outdated and unusable rolling stock, and the impacts on the waste stream of equipment that cannot be retrofitted, reused or recycled. The estimated quantities of new, retrofitted, and unusable rolling stock for each alternative as well as the projected end point for unusable trainsets should be discussed to assess the potential impact each alternative could have on local waste streams.

### Cost

The DEIS (Tables 9-32 and 9-33) provide capital costs for each alternative (exclusive of costs for property acquisition for yards and stations). The table should clarify whether the values provided include property acquisition costs for the right of way. The FEIS should also clarify if the costs include mitigation, which as noted in the DEIS, can be difficult and expensive to implement.

## **Air Quality**

### Construction Phase

We support the potential mitigation strategies listed on pages 7.13-18 to -19 including “voluntary emission reduction agreements, as well as the use of electric, energy efficient or low-emissions



equipment.” However, these efforts only partially address EPA’s concerns over the air quality impacts generated by the diesel-burning equipment to be used during the construction phase of the project. We urge the FRA to require retrofit technology on older equipment to further reduce diesel emissions.

The Tier 1 DEIS acknowledges that managing slowdowns and outages during construction process will be extremely challenging. In estimating emissions and noise impacts, the idling that freight and passenger trains will do while they dwell in temporary locations should be taken fully into account, and care should be taken in selecting, equipping and managing those locations. The duration of construction projects should be estimated generously. Exposures to associated noise and emissions will befall not only those near stations, but those near rail maintenance and storage facilities, as well as designated layover locations (yards, sidings). Provisions for construction should include designating acceptable waiting locations for trains, away from homes, schools, heavily-used parks, and waterways. If locomotives could be laying over in these locations for extended periods, authorities should consider furnishing “portable air” and generators to supply electric power to enable locomotives to shut down safely.

We also encourage the FRA to require idle reduction technology on construction vehicles, and exhaust retrofit technology on older equipment, to further reduce diesel emissions. Lists of technologies verified by EPA can be accessed at: <http://www.epa.gov/otaq/diesel/verification/verif-list.htm>. In addition, the Northeast Diesel Collaborative has prepared model contract specifications that include requirements for construction equipment: engines, add-on technologies, and operations. The model construction specifications can be found on the Northeast Diesel Collaborative web site at URL address <http://northeastdiesel.org/pdf/NEDC-Construction-Contract-Spec.pdf>. The use of ultra-low sulfur diesel fuel on construction equipment should not be considered a potential mitigation strategy, as its use has been required since 2010 (see page 7.13-19).

#### Ongoing

We also encourage the adoption of idle-reduction technologies and practices on the equipment that will operate indefinitely on the NEC. A list of EPA-verified idle reduction technologies can be found at on the SmartWay Transport Partnership site: <http://www.epa.gov/smartway/forpartners/technology.htm>. Additionally, operator training to reduce unnecessary idling of equipment is encouraged.

The Tier 1 DEIS states that “NEC FUTURE is not prescriptive with respect to the use of particular equipment types, and the Action Alternatives are flexible with respect to the mix of equipment that could be operated,” particularly by railroads other than Amtrak. The range of passenger train types contemplated for different types of service-- electric versus diesel versus dual-mode, integrated trainsets versus locomotive-hauled coaches-- indicate that estimating passenger train emissions under the Preferred Alternative will be challenging. EPA’s main interest in the types of equipment to be used by railroads on the NEC concerns the EPA-certified engine Tiers and fuel types represented in the fleets and other aspects of the equipment that affect GHG and criteria air emissions. In general, order of preference based on overall emissions profile is: all-electric, dual-mode, then diesel. The newest, cleanest diesel locomotives being manufactured today are Tier IV, but many Tier 0 and unregulated locomotives are still in use.



(EPA's engine rule requires passenger and Class I and II freight railroads to upgrade engines to higher Tiers and add idle-reduction technology when locomotives are overhauled, but the effect of the rule on fleets varies across railroads and facilities.) We recommend that the FRA gather data from the passenger and freight railroads using the NEC on their fleets' engines, auxiliary equipment (such as AESS technology and APUs), fuel use, and locomotive deployment patterns to get a more accurate sense for the Tier 2 analysis of the likely emissions (corridor-wide, and localized) from diesel locomotives.

The Tier I DEIS states that "the requirements for additional Regional rail storage and maintenance facilities would be considered in subsequent project-level analyses." Siting and expanding storage and maintenance facilities will indeed be challenging, especially in urban areas where neighborhoods are often near enough to be affected by diesel fumes and noise, even if they do not abut facilities. Even if specifics on these facilities must wait a subsequent phase of analysis, we recommend that the FEIS incorporate a rough approximation of likely emissions ascribable to all locations where equipment will lay over, since those emissions are as much a part of the overall project as are emissions from moving trains. Emissions and noise impacts of rail storage and maintenance facilities can be mitigated through the use of technology and operating practices that limit engine on-time, layout to minimize extra moves, and perimeter buffers. To avoid particulate matter "hotspot" impacts on facility abutters, it is particularly important to impose best practices on facilities hosting diesel and dual-mode trains. The NEC Future EIS process provides an important opportunity to consider the costs and benefits of these measures, as well as to unify and memorialize operating protocols corridor-wide. Doing so could increase public acceptance of the project.

### Modeling

- The DEIS acknowledges that MOVES2014 will be required for any subsequent analyses begun after October 7, 2016. As MOVES2014 is currently available, EPA recommends using MOVES2014 (or MOVES2014a) for any subsequent analysis regardless of whether it begins before or after October 7, 2016.
- The MOVES runs for on-road emission sources were done using national-level inputs. While this is fine for a Tier 1 analysis, any subsequent Tier 2 analysis should be based on the best available local data (which should be available at the MPO level).

### **Water Quality**

Appendix E identifies the specific water quality standards applicable to each potentially affected waterbody. It would be helpful if the FEIS explained what those designations mean (e.g. class B indicates that a waterbody is designated for the uses of fishing and swimming). We also suggest that the text summarize the potential effects of construction of a rail alternative on waterbodies of different designated uses. For example, section 7.5.4.4 provides a general description of the possible impacts of construction method (e.g. bridge construction) on waters, but it could be improved by providing a generalized description of the impacts of particular construction methods on waters with different use designations. In other words, construction of a bridge



across a waterbody designated for use as drinking water would likely have an adverse impact greater than a bridge crossing a waterbody suitable for industrial use.

## **Environmental Justice (EJ)**

The Resource Overview section states that in light of the general level of analysis inherent in the Tier 1 DEIS, there is not adequate information to identify whether the Action Alternatives will cause disproportionate adverse impacts on minority and low income populations (EJ populations). We concur with this finding and recognize that data to accurately predict impacts for the construction and operation of any proposed project will require focused analysis in the future. Our comments below recommend areas for additional attention and suggest approaches for the Tier 2 EJ analyses. In those instances where our comments below can be addressed in the Tier 1 FEIS, we encourage FRA to do so.

### Identification of Minority and Low Income Populations (EJ Populations)

The DEIS identifies areas of concern for EJ that will require more in-depth analysis during the Tier 2 process. It further states that the Tier 2 effort will provide additional, detailed assessment of impacts at the community and neighborhood level. EPA recommends that well before the beginning of scoping meetings for the Tier 2 EISs, FRA launch targeted outreach efforts as well as a neighborhood level analyses of impacts from construction and operation of the preferred alternative. During the Tier 2 analysis, the types of additional data collected at the neighborhood level should include, at a minimum, the density of minority and low income populations, existing and reasonably foreseeable localized pollution sources, unique geographical features that would amplify negative impacts, the proximity of the project to EJ populations, wind patterns, risks to pedestrians, and the like.

Table 7.11.1.2 discusses the FRA's approach to identifying minority or low-income populations as a census tract that meets or exceeds 10 percentage points higher than the total minority or low-income percentage in the corresponding county (or that has a greater than 50% minority or low income population). While this may be a reasonable rule of thumb, we recommend the use of EPA's EJSCREEN as a resource to help identify minority and low income populations. This computer based tool is available on EPA's national website.

### Disproportionate Adverse Impacts on EJ Communities

The EJ Executive Order and DOT's implementing guidance call for a focus on disproportionate adverse impacts on minority or low income populations. In contrast, much of the environmental justice discussion in the DEIS focuses on benefits to EJ populations. Recognizing that this is a high level document without detailed specifics at the project level, we recommend that the FEIS discuss disadvantages at the same level of detail currently used for benefits. We recommend that the FRA project where impacts are likely to affect EJ communities already impacted by rail facilities, even where refined information is not yet available. For example, siting and expanding storage and maintenance facilities will be challenging throughout much of the NEC region, especially in urban areas. In many instances EJ neighborhoods are often near enough to rail infrastructure that they are affected by diesel fumes and noise, even if they do not directly abut facilities. Many storage and maintenance facilities are already located in densely populated areas with significant EJ populations. Even if specifics on the location of these facilities must wait for



Tier 2 analyses, we recommend that the Tier 1 FEIS incorporate a rough approximation of likely emissions attributable to all locations where equipment will lay over, since those emissions are as much a part of the overall project as are emissions from moving trains.

The projected intercity service frequency increases for Action Alternatives 2 and 3 are large. Accommodating this traffic at existing stations may prove difficult where there is limited land available to support additional infrastructure (such as parking garages) and limited land to provide a buffer area between densely populated housing and train traffic. This negative impact on dense urban populations, likely including EJ populations, should be taken into account in subsequent analyses. In addition, subsequent Tier 2 EISs should address in a more detailed fashion the impacts of these increases on host neighborhoods, in terms of foregoing potential alternative land uses, emissions and noise hotspots, and how those impacts could be mitigated. Additional frequencies for regional rail service at stations are not nearly as sizeable, but add to the cumulative burden.

#### Economic Impacts

The Tier 2 analysis should consider whether any of the Action Alternatives result in an increase in the cost of intra-city transportation or whether project funding at the state and local level has the potential to disproportionately burden EJ populations.

#### Safety, Noise and Vibration Impacts

With respect to physical safety, Section 7.18.6 of the DEIS states that “Subsequent Tier 2 analysis to address safety concerns would occur for site specific elements as needed.” Based on generally available information, the Tier 1 FEIS should address safety, noise and vibration impacts based on the reasonably foreseeable effects that any of the Action Alternatives could cause, particularly as they might disproportionately affect EJ communities.

The Tier 1 FEIS should examine the impact of the Action Alternatives on pedestrian safety issues as trains pass through highly urbanized areas, taking into account “hot spots” identified through accident data collect by FRA. The FEIS should also provide mitigation measures that can be identified at the Tier 1 phase, including safety measures that can reduce pedestrian accidents.

With respect to noise and vibration impacts, millions of people stand to be affected by any of the Action Alternatives. Noise impacts of this scope are not surprising given the location of the project in a densely-populated part of the U.S. The scope and severity of noise impacts must be addressed in light of their potential consequences on human health—not merely “annoyance” potential-- and potentially disproportionate impacts on EJ and low-income populations near infrastructure (track, stations, yards).

EPA experience from addressing locomotive complaints from neighbors of track and yards is that they are often just as concerned about noise as they are about fumes. The DEIS does not address potential noise impacts from idling locomotives. Complainants report that the low throbbing sound of an idling diesel locomotive is agitating, and that prolonged exposure to the sound is more stressful than brief exposure to louder sounds of passing trains, leading to the inability to sleep, anxiety, and anger. In yards and other locations where locomotives dwell and



idle, onboard or offboard idle reduction technology should be considered as tools for reducing noise impacts. In situations where technology is ineffective or insufficient, protocols for staff management of engines under a full range of circumstances (season, duration of layover, temperature, etc.) could help.

Locomotive noise may have an adverse effect surprisingly far from its source (e.g., traveling up a hillside, or with prevailing winds) and affects those in poorly insulated homes more. Therefore, subsequent analysis should pay particular attention where locomotives may be reasonably expected to dwell near neighborhoods, and the topographical, architectural and other relevant conditions, and focus on infrastructure and enforceable procedures that can mitigate noise. The magnitude of noise impacts route should be investigated thoroughly, and mitigation measures should be given prominence in Tier 2 planning and project funding.

In addition, because freight traffic will be part of any NEC Future system, discussion of freight transport by rail through EJ areas should be addressed. See e.g. *Rail Transportation of Toxic Inhalation Hazards policy Responses to the Safety and Security Externality*, Branscomb, Lewis, et al.

#### Public Participation

EPA appreciates the broad outreach approach adopted to date by the FRA. EPA recommends extending the public involvement and we have provided a list of suggested contacts under separate cover to the FRA. We encourage the FRA to include specific discussion of intra-city transit impacts and mitigation strategies as it moves forward. We also recommend that the FRA consider establishing an EJ Advisory group to facilitate EJ outreach. This has proven to be effective for other projects.

#### **Analysis of Indirect Impacts**

We recognize that the level of analysis of indirect impacts in a Tier 1 DEIS is necessarily different from that which will be undertaken for specific projects along the corridor. We believe that the analysis of the potential for induced growth in the DEIS (Section 6.3.6) is sufficient to identify the types of changes likely to be associated with the alternatives. It is helpful to know, for example, that the Greater Hartford area could see great potential for induced growth, depending on the alternative. We suggest that the FRA coordinate with the FHWA regarding the I-84 Hartford project (<http://www.i84hartford.com/index.html>), which is going through a separate FHWA-led NEPA process now. This section of I-84 is adjacent to the Hartford train station, and at a minimum it will be important to incorporate information from that study into the assessment of cumulative impacts in the NEC FEIS.

Additionally, we recommend that the list of potential mitigation strategies (Section 6.3.6.3) not be restricted to actions that could be implemented at the local level, but instead be expanded to add strategies that could be supported by regional, state, or federal governments, including those that might be funded by FRA to address the impacts of induced growth. In other recent New England transportation projects, for example, federal or state transportation agencies have funded some local planning in anticipation of growth likely to be induced by the transportation investment.



We note that we found some of the tables in the section on Travel Market Effects (6.3.4) confusing, and recommend adding text in the FEIS to improve clarity. Examples of tables that would benefit from clarification include the following:

- Table 6-7 and text immediately below. The text should clarify the basis for the conclusion that auto diversions contribute a relatively low percentage of User Benefits, and why regional rail customers would realize most of the User Benefits.
- Table 6-14. It is not clear what the columns on ‘plan compatibility’ refer to. For example, what does “Percentage of counties that is compatible with all development plans” mean? A more concise explanation of the information contained in the table would be helpful. We also suggest noting that in New England, county governments have very limited functions, and planning at a scale larger than a municipality is usually done by regional planning agencies, not counties. It also would add clarity to move some of the explanation that is in the note to the title of the table.
- Table 6-15. Some explanation of pricing would be helpful since it is not clear what is meant by “low-high” or “medium” or “medium-high.”

## **Cumulative Impacts**

Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. The CEQ in 40 CFR Section 1508.7 defines cumulative impacts as “impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” Therefore, a cumulative impacts assessment should be an integral part of both the Tier 1 and Tier 2 EISs. EPA provides these comments to help guide FRA and FTA’s analysis of cumulative impacts during the ongoing and future Tiers of the NEC Future NEPA reviews.

### Study area

For Tier 2 it may be beneficial to further expand the area considered in the cumulative impact analysis. Further, we suggest during the development of Tier 2 documents that the secondary and cumulative effects analysis define geographic and time boundaries for the cumulative impact analysis. The geographic scope should be determined in part by major resources impacts. For example, if stream or wetland impacts are of particular concern in a Tier 2 project it may be appropriate to select potentially impacted watersheds as the study area. The geographic boundaries for the cumulative impact analysis should be clearly identified. Geographic boundaries are typically shown on a map; and a historic (temporal) baseline is often set at a major event changing the local environment, possibly using the year a facility opened or when major upgrades occurred. Appropriate maps should be provided showing the geographic boundary in both Tier 1 and 2 documentation.

### Types of effects

Cumulative effects can include time crowding, time lags, space crowding, cross-boundary, fragmentation, compounding effects, indirect effects, and triggers and thresholds (see CEQ 1997-“Considering Cumulative Effects Under the National Environmental Policy Act”). Although analysis presented frequently considers space crowding, which has a high spatial density of effects on an environmental system, or time crowding, which considers frequent and repetitive effects on an environmental system, EPA encourages FRA and FTA to consider a wider variety of effects during the Tier 2 analysis.

Cumulative impact assessment is useful in the identification of resources affected by multiple projects over time and space. Identification of these resources will help FRA/FTA develop more effective compensatory mitigation or prioritize areas to focus on for avoidance and minimization efforts, particularly when the historic extent of resources may be informative. If there are resources known at this stage we suggest they be included in the FEIS.

### Past, Present and Reasonably Foreseeable Projects

The DEIS does not provide a detailed quantitative analysis of past, present, and reasonably foreseeable projects. Where possible, the use of quantitative data would allow for concrete comparisons. We urge FRA to conduct a detailed quantitative analysis in Tier 2 as appropriate.

### Resources

The cumulative effects chapter identifies the resource areas of concern or sensitivity that FRA considered in determining cumulative impacts that would result from the implementation of Tier 1 alternatives. Some of the elements included as potential key resource areas are either too general and limited in scope or are not typically considered as resource areas, for example transportation. This section may be more appropriately labeled “potential key resources and other considerations” to better incorporate items such as transportation. We suggest, that in the cumulative effects analysis, these resources, ecosystems and human communities be considered in terms of their response to change, their stresses, and their capacity to withstand these stresses.

### Trends

The cumulative impact analysis could be improved by including a more robust discussion of future trends and a more detailed analysis of specific resources. The Tier 1 document explores the multimodal transportation network, market-effects, employment and other broader topics. Much of this information could be used more broadly during Tier 2 to consider potential cumulative effects and to develop an analysis of reasonably foreseeable future trends. We suggest utilization of a trend analysis for resources that may be adversely affected by the proposed alternatives.

### **Hazardous Waste and Contaminated Material**

Section 5.2.7 notes that shipment of goods by rail is expected to grow by 128% by 2040. It also shows that as of 2012, the freight shipped in the study area included coal (56%) and chemicals (9.7%) of total tonnage. Presumably, there will be a reduction in coal shipments by 2040 and an increase in shipment of gas, oil and other hazardous materials. The shift in freight during that



period should be considered in the cumulative impact analysis, as the shift is a reasonably foreseeable event that will have an impact on resources.

#### Comments on Chapter 7.8

- Many of the sites on the lists that were used to identify areas of contamination are currently being remediated by states, EPA or private parties. A list of those sites that have been identified but that are not undergoing current remediation would be more accurate in determining the impacts those sites may have of the action alternatives. Many of the lists consulted for the analysis in the DEIS contain that information.
- The text mentions that the RCRAInfo database, RCRA CORRACTS (Corrective Action) list maintained by EPA, and RCRA TSDF list maintained by EPA were used for the identification of RCRA sites in the study area. The DEIS also references EPA's Envirofacts and EPA's Cleanup in My Community. The FEIS should include specific references for the RCRA Corrective Action list and RCRA TSDF list.
- The DEIS notes that the Tier 2 analysis would provide a more detailed review of the HWCN sites, including an updated database review, site and adjacent property inspections, and file reviews. Environmental site investigations including sampling should be completed to confirm the type and extent of contamination where it is relevant to the environmental impact of a tier 2 project. The DEIS also specifies that project sponsors will be responsible for identifying HWCN within their project limits, coordinating with local, state, and federal agencies managing HWCN, and implementing remedial actions and measures for removing, handling, or transporting HWCNs. The review should also include the additional elements identified in Appendix E.08, Section 1.7, including interviews with persons knowledgeable about site activities, discussion with regulatory agencies regarding known issues at the sites, and analysis of all known information to provide an environmental assessment of the site.
- Section 7.8.6 – Potential Mitigation Strategies mentions that HWCN (e.g., contaminated soils and groundwater) generated during construction activities will be properly managed. All appropriate RCRA regulations, guidance and policy should be followed for the management of HWCN. It is recommended that the Tier 2 analysis include a more detailed review of proposed materials management.
- Section 7.8.6 specifies best management practices to provide a safe working environment for workers and the public, including the use of dust control technologies. Air monitoring during site work may also be applicable.
- Section 7.8.7 mentions that soil and/or groundwater sampling would be conducted during Tier 2 to confirm the type and extent of contamination. Consideration and sampling for potential vapor intrusion may be applicable for any buildings that are planned.

## **Energy Use**

We recommend that the text accompanying Table 7.14.4 acknowledge that the analysis of energy use by alternative will be affected by a later decision as to the type of trainsets that will be used. The text accompanying table 7.14-4 should also indicate that the mix of diesel and electric trains is not yet decided and that the mix selected will dictate the resulting energy use and related impacts such as GHG emissions, potential surface water contamination, etc.

## **Agriculture**

Limiting the impact analysis to land areas within 2000' of the rail infrastructure and identifying acreage may not sufficiently identify agricultural impacts. The FEIS should elaborate on the potential indirect affects, especially of Alternatives 2 and 3, for increased conversion of agricultural lands to other uses. As transportation and rail options improve for commuters it is likely that areas within proximity to rail stations (much beyond the 2000 feet from rail infrastructure evaluated in the Tier 1 EIS) will feel development pressure that may increase conversions of agricultural lands to other uses (e.g., commercial and residential development).

New Jersey should be included as a state (indicated by a + sign on the DEIS tables) that has set objectives and goals for farmland preservation; the state has a strong interest and program for farm preservation. Also, the section of Appendix E.03 does not contain the list of documents mentioned in Section 7.3.5.

## **Commitments for the Tier 2 Process**

As noted in the Tier 1 DEIS, the Tier 2 analysis may feature different lead agencies conducting the development of related environmental studies. This could lead to portions of the project being considered under NEPA through Categorical Exclusions (CE), Environmental Assessments (EA), or EISs. Some of these approaches could limit opportunities for public and agency review and comment. To address this potential limitation we recommend that regardless of level of NEPA documentation selected, resource agencies and other stakeholders be kept informed and provided an opportunity to offer comments.

We recommend that commitments made for Tier 2 NEPA documents be highlighted in a stand-alone section of the document. These commitments are critical for the project moving forward, and may address comments made that are not able to be resolved during the Tier 1 process. Stakeholders would greatly benefit from a summary of commitments covering such areas as agency and public coordination, avoidance and minimization of impacts, mitigation and the level of detail that will be provided in subsequent Tier 2 documents. We further suggest that these commitments be included in the ROD.